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ABSTRACT

This study asks how college attendance affects changes in students' religious beliefs, exploring factors in the college environment that account for such changes. Data for the study was derived from the 1994 Freshman Survey and 1998 College Student Survey conducted annually by the Higher Education Research Institute for the Cooperative Institutional Research Program. The sample for the study included over 4,000 students attending 76 four-year institutions; the primary dependent variable was a self-rating on changes in religious beliefs and convictions. Sections of the study cover the introduction, objectives, methodology, results, limitations, and discussion and conclusion. Some study results were contrary to what had been anticipated, e.g. while students tended to experience changes in religious beliefs, the direction of change was toward a strengthening of convictions. The study also supported past findings that students who experienced a weakening of religiosity tended to be liberal males with negative emotional health experiences; females having positive emotional health were more likely to experience a strengthening of beliefs. One unexpected finding was that religious affiliation does not necessarily make a direct difference in students' religious convictions. The study suggests increased student-faculty interactions and support for religious student organizations and activities as ways to strengthen students' religious beliefs. (Contains 25 references.) (CH)

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Changing Religious Beliefs Among College Students

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Introduction: Problem Statement and Significance

Late adolescence and early adulthood have been noted as the "impressionable years," when attitudes are susceptible to change, as late teens leave their home environments and begin to establish individual identities (Sears, 1989). These years also signify the period when most students enter higher education. In addition to the impressionability of students within this age group, the college itself would also affect changes in beliefs and attitudes. Walsh and Charalambides (1989) have demonstrated that significant belief change is likely to occur when message information is high in importance, novelty, and plausibility, conditions that often exist in higher educational settings. For such reasons, it is not surprising that higher education scholars have proposed that college attendance makes an impact on student beliefs and identities, such as their political identity, cultural identity, and sexual identity, to name a few.

While much student development research on identities has focused on areas related to race and gender, one important aspect that has been largely neglected is religious identity. Despite this lack of attention in student development research, ethnicity, gender, *and* religion have been ranked as the most salient social identities among undergraduates (Garza and Herringer, 1986). Erik Erikson (1964) identified religion as an important domain of identity that is evident in the process of self-discovery. Moreover, sociologists have pointed out that religion is a worldview and belief system (Berger, 1973). Religion provides the inner framework for moral meanings, values, and purpose. Religion, in other words, provides overarching meaning to various symbols in society, such as the legitimization of power and the explanation of suffering, and the role of the self in relation to society (Berger, 1973). Berger states that

meanings, values, and beliefs are "held together" in a comprehensive interpretation of reality that relates human life to the larger universe. From this perspective, religion provides a mental structure that makes it possible for "man to feel at home" in the universe. Thus, the study of religious change is more than simply one of the many facets of student identity. Religious beliefs or lack thereof, offer insight into human drives, hopes, and reasoning, as well as perceptions of the self in relation to others and the physical world.

Inner belief frameworks, such as religion, are not fixed. The environment and experiences within the environment can exert a direct or dynamic influence upon individual beliefs. Researchers have empirically demonstrated a decline of religiosity during the college years (Astin, 1993; Bowen, 1997; Cox, 1988). Astin (1993) finds a drop in church attendance and reports of prayer and saying grace before meals. These behaviors are reflective of changing religious attitudes. Studies also reveal that students are less favorable towards the church, less convinced of the reality of God, less favorable towards the observance of the Sabbath, less fundamental, and less conservative (Bowen, 1997). Others have identified college attendance as a leading predictor of religious apostasy (Hadaway and Roof, 1988). Thus, it is no surprise that Pascarella and Terenzini (1991) conclude that there is a freshman-to-senior decline in doctrinaire religious beliefs. Given this phenomenon, how does college attendance affect changes in students' religious beliefs?

Sources of Change in Religious Beliefs and Religious Identity

Past studies have identified specific individual characteristics and environmental factors that identify the leading causes of religious decline (Condran and Tamney, 1985; Nelson, 1988; Roof and McKinney, 1979, 1987, 1988). In addition, the findings also highlight specific individual and environmental qualities in understanding the theoretical frameworks.

Roof and Hadaway (1977, 1979) were among the first to produce profiles of apostates. Using the 1973-1976 series data from The National Opinion Research Center's (NORC) General Social Survey, they found "that those switching to 'none' [category of religious affiliation] tended to be younger, predominately male, more educated, more committed to the new morality, less happy, and to have less confidence in American institutions" (1979, p. 373). Though this study was limited to white respondents across the general population, their early findings provide some of the other characteristics in predicting this phenomenon. Subsequent quantitative studies found similar characteristics in describing a likely profile of a religious apostate (Roof and McKinney, 1987; Condran and Tamney, 1985). In addition to being liberal, Roof and McKinney (1987) state "those becoming non-affiliates are young, predominately male, well educated, committed to the new morality, and oriented generally to an ethic of personal fulfillment" (p. 35). Conrad and Tamney (1985) described such persons as "cultural nones," who came to accept values and attitudes inconsistent with institutional religion. These findings help us to identity those who might be more prone to abandoning their religions. More importantly, self-definitions, such as being "less happy," "more committed to a new morality," and "hav[ing] less confidence in American

institutions," suggest that specific perceptions of the self be more strongly linked to religious apostasy than other self-perceptions.

Beyond the characteristics of apostates, Hadaway and Roof (1988) pointed to experiences that would often lead to apostasy in a following study. Experiences, such as marital problems, abuse, and social dislocations, were amid the leading explanations for one's unhappiness, leading to apostasy. Hence, these perceived experiences are more strongly associated to religious change than others. These scholars also discerned that while social status was an important factor, the effect was largely accounted for by education. They concluded, "Higher education tends to expand one's horizons and may also mean greater exposure to counter-cultural values. For many persons, such exposure has worked to erode traditional plausibility structures, which maintained the poorly understood religious convictions that seem so typical of American religion" (p.36). In other words, Hadaway and Roof have found that college attendance tend to challenge previously held religious beliefs, particularly those beliefs with lesser degrees of conviction.

This finding supports sociologist Peter Berger's (1973) claims that encountering contrary beliefs, particularly in college, would more likely lead to questioning, and possibly abandoning, one's religious faith. He asserts that pluralization threatens religious beliefs and identities. Meanings behind religious symbols are validated through an unchanging social experience that confirms particular views. However, Berger explains that in a pluralistic environment, "the individual is forced to take cognizance of others who do not believe what he believes and whose life is dominated by different, sometimes by contradictory, meanings, values and beliefs. As a result…pluralization has

a secularizing effect. That is, pluralization weakens the hold of religion… on the individual" (p. 80). Based on Berger's rationale, diversity related experiences in particular are likely to contribute towards a weakening of personal religious convictions. It would be expected that encountering diverse worldviews and religions would give rise to questions and challenges to one's faith, which may lead to religious weakening or abandonment.

In sum, examinations by Hadaway and Roof show that religious decline across the nation are partly attributable to higher education. One weakness in this study was limiting the methods to factor analyses. Although their early research indicate individual attributes and experiences as most common among apostates, how these various aspects interplay during the college experience remain ambiguous. It remains unclear as to whether the common characteristics among apostates posed by the researchers apply to collegians. Moreover, their study aimed to observe the factors that might lead to changes in religious *identity*, only presuming a weakening of religious *beliefs*.

The apostasy studies reviewed thus far have defined apostasy as switching to another denomination, withdrawing from religion entirely, or both. Yet, it can be argued that changes in religious beliefs can occur while maintaining one's religious identity. Religious affiliation can be a combination of individual beliefs and cultural identity. Moreover, identification with a religious group is not necessarily evidence of a complete personal adoption of its beliefs or commitment to its theology, but can also refer to an ascription to a particular community, family heritage, and/or culture (Caplovitz and Sherrow, 1977). A person may not ascribe to and practice the decrees of Roman Catholicism, for example, but may still identify herself as a Roman Catholic, as part of

her cultural heritage. Simply noting a change from being Roman Catholic does not clearly indicate whether one has abandoned his/her religious beliefs, family heritage, cultural practices, or all of the above. For this reason, religious apostasy is not accurately measured by denominational switching. Rather, this study will observe changes in religious beliefs and convictions as a more accurate measure of religious apostasy.

Although the studies noted thus far did not specifically sample college students, the findings provide insight on the possible impact of the college experience upon students' religious beliefs. First, apostates share particular personal characteristics. Among these is a tendency to hold views that are more liberal. Secondly, higher education appears to play some role in the recognition of differences in beliefs. In particular, encountering diverse cultures and values, particularly within the college environment may contribute to a greater questioning and weakening of previously held religious beliefs.

Objectives

In an attempt to fill this gap in the literature, this study explored what factors in the college environment account for changes in students' religious beliefs. Based on previous research on students' religiosity and theories in social psychology, it was hypothesized that:

1. Overall, students will experience a decline in religious beliefs and convictions.
2. Characteristics and experiences that were found among religious apostates in previous studies, such as being male, liberal, and unhappy, would produce similar findings.
3. Greater involvement in diversity-related experiences would be strongly associated with a weakening of religious beliefs.

Methodology

The data for this study was derived from the 1994 Freshman Survey and 1998 College Student Survey, which are annually conducted by the Higher Education Research Institute for the Cooperative Institutional Research Program (CIRP) at the University of California, Los Angeles. The 1998 follow-up survey was funded by the W.K. Kellogg Foundation. The combination of these surveys provides a longitudinal database for a national cohort of 1994 freshmen who were surveyed upon entering college and surveyed again four years later in 1998. The particular representative sample for this study included over 4,000 students attending seventy-six 4-year institutions across the country. This selected sample was limited to students attending 4-year institutions.

Measures and Analysis

The primary variable of interest was a single dependent measure-- a self-rating in changes in religious beliefs and convictions. The specific survey question was as follows, "Compared with when you entered college as a freshman, how would you describe your religious beliefs and convictions?" This response was measured on a five-point scale ranging from (1) 'much weaker,' (2) 'weaker,' (3) 'no change,' (4) 'stronger,' and (5) 'much stronger.'

Three analytic procedures were applied to the dependent variable in this study. In the first procedure, frequencies were performed in order to observe the distribution of responses in self-rated changes in religious beliefs and convictions. Second, the frequency distributions were compared across among major religious groups. Since theologies greatly vary by religion, the changes in strengthening or weakening of beliefs

were analyzed across Protestants, Catholics, Jews, and Eastern religions (e.g., Buddhist and Islamic.)

The third analysis utilized a multivariate design. A hierarchical regression analysis, or causal analysis, provided a clearer understanding of *how* changes in religious beliefs are affected by the college environment. Through this analytic method, the relationship between the college environment and the outcomes can be examined, independent of student input characteristics. Blocked, stepwise regression was utilized in order to assess the significant predictors of the dependent variable, as well as to observe the change in betas at every step based upon each variable entering the regression equation. Sixty-four independent variables were grouped into seven "blocks" and were ordered in a quasi-temporal sequence according to Astin's (1991) Input-Environment-Outcome (IEO) model of college impact. According to the IEO methodology, independent variables were tested for stepwise entry ($p < .005$) into the regression equation. The first two blocks consisted of pre-college characteristics: (1) student characteristics, including gender, parents' religion, and religion prior to college attendance and (2) views, goals, and high school experiences. The next three blocks were (3) student's major, (4) institutional characteristics, and (5) college experiences. The remaining blocks consisted of intermediate outcomes, or concurrent measures, with the outcome: (6) intermediate outcome views and experiences and (7) self-ratings. The self-ratings were entered last because of its expected high association with the dependent variable, which is also a self-rating. The order of these seven blocks assures that the impact of college on students is examined independently of the biasing effects of entering student characteristics. In other words, pre-college student characteristics, such as

religious affiliation, were controlled in order to more accurately assess the effect of various aspects of the college environment on students' changes in religious beliefs and convictions.

Input Variables

The following sixty-four independent variables were mainly chosen according to the major findings from previous quantitative studies on religious apostasy, as well as studies on college impact (see Appendix for independent variables and scales). The first block, *student characteristics*, consisted of the following variables: *sex, student's religion,* and *mother's religion*. Sex was selected as a reliable measure of control, as found in previous studies (Caplovitz and Sherrow, 1977; Roof and Hadaway, 1979). The religion variables were grouped into four religions, Catholic, Protestant, Jewish, and Eastern (i.e., Buddhist and Islamic) religions. Dichotomous measures were used, indicating the students'' religion and mothers' religion. Mother's religion, which usually indicates family religion, was used in order to observe which religious background would best predict changes in religious belief.

The second block, *views, goals, and high school experiences*, also were selected as control measures in determining the effect of college on religious beliefs. Students' views included in the analysis comprised of the following issues: *political views, views about homosexuality, abortion, pre-marital sex, use of marijuana,* and *abolishment of racist speech, and the effect of individuals on society*. Based on past findings on the positive relationship between liberal views and apostasy (Roof and Hadaway, 1988), these variables sought to identify the specific areas of liberalism that would account for a weakening of religious beliefs. Liberal views on homosexuality and abortion tend to be

in contradiction to most fundamental religious faiths. It was hypothesized that students that are more liberal would show a weakening of religious beliefs. One high school experience, *attended religious services*, was included in the regression. It was expected that attending religious services prior to college would suggest a greater degree of commitment to religious teachings. In addition, the goals, *help others in difficulty, influence social values, be well off financially, promote racial understanding* and *develop a meaningful philosophy on life* were added as pre-test measures for the same intermediate outcome goals in the follow-up survey. *High school grade point average (GPA)* was also added in order to note the influence of pre-college academic achievement on religious beliefs.

Environmental Variables

The environmental blocks provided the main variables of interest to answer the question of this study: How does college affect changes in religious beliefs? Six dichotomous measures representing students major formed the third block. The majors, *biological science, engineering, humanities, fine arts, social sciences, and physical science,* were entered in the regression in order to observe any unique effect of various academic disciplines on religious beliefs. Few studies have sought to examine the relationship between religious affiliation and academic field, but its findings have not been consistent (Pascarella and Terenzini, 1991). *Student major* variables were entered immediately prior to the remaining environmental blocks since the academic major can characterize a student's interests prior to college entry as well because of college.

Institutional characteristics, block four, consisted of the following dichotomous measures for institutional type and national geographic location: *Catholic college,*

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Protestant college, Non-Sectarian college, East Region, West Region, South Region. A continuous measure indicating *Selectivity*, determined by mean GPA and Standardized Assessment Test (SAT) scores, was also used. This environmental block examined the influence of the physical environment and institutional type on the dependent variable. Studies have shown geographical location of the college to be related to changes in religious values (Roof and Hadaway, 1988). In addition, an aggregate peer measure by institution indicating the mean number of students that frequently attended religious services was also included in this block. Astin's (1993) research on the strong effects of peer group substantiates its relevance for this study. Astin finds "the students' peer group is the single most potent source of influence on growth and development during the undergraduate years" (p.398). Astin explains that as a member, the beliefs and values of the individual conform to the beliefs and values of the group. Dalton (1988) focuses on the impact of the peer culture and adds, "the values college students develop are strongly influenced by the extent and intensity of their involvement with the college peer culture and the values prized in that culture" (p.2). Peer groups, by nature, possess considerable influence upon its members; that is, individual members develop attitudes towards each other and together, develop consensual attitudes and beliefs.

College experiences in the fifth block were entered in order to assess specific college activities that might account for a change in religious beliefs and convictions. The degree to which student are involved in college, including specific involvement activities have been shown to be among the primary factors that contribute to students' development during their college years (Astin, 1993). These variables consisting of *college experiences* were measured on the same 1998 survey as the question for the

dependent variable. While some college experiences may have occurred simultaneously with any changes in religious conviction, these questions were phrased as activities during college and are listed as college experiences. The following experiences were included to test the findings from previous research by Roof and Hadaway: *got married, withdrew from school,* and *distance from home.* Previous studies also have found that living at home decreases changes in religious preferences (Pascarella and Terenzini, 1991). The following variables, *attended cultural diversity workshop, had roommate of different race ethnicity, enrolled in ethnic studies course, and enrolled in women's studies course,* and an additional *ethnic interaction* composite *(socialized with a different ethnic group, studied with a different ethnic group,* and *interacted with a different ethnic group)*[1], utilized as variables representing diversity. As theorized by Berger (1979), encountering differing or pluralistic beliefs would likely lead to a weakening of personal religious belief. Other experiences, *withdrew from school, participated in leadership training,* and *studied with other students* were also included in the analysis.

In addition, a composite of ten student-faculty interaction measures was also created (alpha= .86) and included in this block. The variables included in this composite measure were: *faculty encouragement for graduate professional school, advice about educational program, respect, emotional support, letter of recommendation, honest feedback, intellectual challenge, opportunity to discuss homework, hours per week talking w/ faculty outside of class,* and *faculty took interest in my progress.* Previous research has demonstrated the important effects of faculty on student development (Pascarella and Terenzini, 1991).

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[1] Alpha= .71

Intermediate Outcomes

The next two blocks consisted of intermediate outcomes-- measures that reflect aspects of the college experience. However, such measures might also be considered as college outcomes. Hence, intermediate outcomes are to be examined only after controlling for input and earlier environmental measures (Astin, 1993a).

This block included *college GPA*, *hours per week in religious services*, and the views and goals included in block two and post tested in 1998. In order to observe associations between the outcome variable and liberal views, a composite of liberal views similar to the pre-test was created. Three variables, *sex ok if people live together*, *abortion should be legal*, and *marijuana should be legalized* created a post-test liberal views variable (alpha = .85).

The final block constituted self-ratings that may relate to effects of diverse interactions: *acceptance of different races/cultures*, *cooperativeness*, and *understanding of others*. Another self-rating, *emotional health*, was included since past studies had indicated that apostates experience feelings of maladjustment and unhappiness (Hadaway and Roof, 1987; Caplovitz and Sherrow, 1977).

Results

Descriptive Analyses

Frequency distributions of students' report of changes in religious beliefs and convictions in 1998 showed that the majority of students experienced a change in religious beliefs and convictions since they had entered college (see Table 1). Contrary to the hypothesis, over one third of students experienced a strengthening of religious

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convictions and beliefs compared to 13.7% who indicated a weakening. Almost half of the students surveyed (48%) did not experience any change. The data suggests that although the university may not necessarily have an overall secularizing effect on most students, there is still a little over one student in ten that experiences a weakening of beliefs during college.

Table 1. Self-ratings of Changes in Religious Beliefs and Convictions, 1998 (N=5,326)

Self Rating	N	Percentage
Weaker	727	13.7
No Change	2572	48.3
Stronger	2019	37.9

Source: UCLA Higher Education Research Institute, Cooperative Institutional Research Program

Differences were also observed across major religious groups (Table 2). Although Catholic and Protestant groups constitute the majority of this sample, these findings show that a weakening of religious beliefs and convictions can be found in all major religious groups. A weakening of religious beliefs is most common among Catholics students.

Table 2. Weakening Religious Beliefs and Convictions Among Religious Groups

Religious Group	N	Percentage
Catholic	1689	17%
Protestant	1582	13%
Eastern	200	14%
Jewish	39	8%

Source: UCLA Higher Education Research Institute, Cooperative Institutional Research Program

Regression Analysis

The stepwise regression analysis identified aspects of college that would account for changes in religious beliefs and convictions. Of the sixty-four input and environmental variables allowed to enter the regression, twenty-three variables entered the equation in significant weights: nine input variables, five environmental variables, and nine intermediate outcomes (see Appendix B).

Results: input characteristics.

Among the 23 pre-college variables, 9 input characteristics entered the equation (see Table 3). Most of these predictors were significant when they entered, but became nonsignificant by the last step. These findings show that individual characteristics alone do not predict whether students will change their religious convictions. Rather, individual characteristics are often mediated by other variables; they are important as to what sort of experiences students may engage in that will affect their religiosity. Past studies established characteristics common among apostates, but the findings here demonstrate that such qualities are not necessarily causal by themselves.

The strongest variable, however, in predicting a weakening of religious beliefs is whether a student had *attended religious services prior to college*. This activity has a positive effect on strengthening religious convictions, but its effect becomes negative and nonsignificant once the post-test, *attending religious services during college*, enter the equation. The zero-order correlation between these 2 variables is positive ($r = .54$). Hence, the changes in its effect on the outcome major may be the result of multicollinearlity. Nevertheless, this finding suggests that changes in religious views are largely a function of pre-religious activities. In addition to attending services, pre-college

religious activities might also insinuate other pre-college religious dispositions and influences (i.e., culture, or familial upbringing.)

Table 3: Standardized Regression Coefficients for Input Variables

Variable	Zero-order r	Beta After Inputs	Beta After Env't	Beta After I.O.
Sex: Female	.09	.06**	.04*	.03
Protestant Religion	.06	.02	.02	.02
View: Sex OK If People Like Each Other (pre-test)	-.17	-.09**	-.08**	.02
Attended Religious Services (pre-test)	.15	.08**	-.04	-.15**
View: Legalize Marijuana (pre-test)	-.14	-.08**	-.06**	.01
Goal: Promote Racial Understanding (pre-test)	.07	.07**	.05*	.02
View: Prohibit Homosexual Relations (pre-test)	.08	.08**	.05*	-.04
View: Individual Can Do Little (pre-test)	-.08	-.05**	-.05*	-.02
Average high school GPA	.00	-.04*	-.05*	-.04*

*p< .01, **p<.001

Interestingly, high school GPA showed to be a significant predictor on weakening religious convictions, after controlling for all variables in the analysis. That is, students who have higher high school GPAs tend to report a weakening of religious beliefs. In other words, high academic achievers are predisposed towards a weakening of religious faith prior to college entry. College GPA, however, did not enter in the equation, suggesting academic achievement during college does not predict religious change.

Most of the pre-college characteristics entered the equation and remained significant after controlling for the environmental variables, but became nonsignificant after controlling for the intermediate outcomes. Betas for gender and pre-college views regarding casual sex, marijuana use, and prohibiting homosexuality dropped and became

nonsignificant when *attended religious services during college* entered the equation. In simpler terms, students attending religious services while in college tend to be female and opposed to casual sex, legalizing marijuana, and homosexual relations. Moreover, attending religious services is while in college predicts changes in religious convictions, beyond gender or views prior to college attendance.

Another pre-college view, *promoting racial understanding* was also significant after controlling for the environmental variables but its beta dropped and became nonsignificant once the post-test goal of *influencing social values* entered the regression equation. Hence, this pre-college value and intermediate outcome goal are positively associated. As it will be explained in a later section, *influencing social values* was demonstrated as a direct predictor to the outcome measure.

Results: environmental characteristics.

Among the 25 environmental variables, 6 entered the regression analysis (see Table 4). Among them, the *peer mean of attending religious services* showed for most of the variance in the dependent variable, changes in religious convictions. This institutional characteristic remained significant throughout the regression analysis, whereas the other entered variables became nonsignificant after controlling for the intermediate outcomes. It is important to note, however, that the intermediate outcomes were strongly associated with the outcome variable, as will be explained in the next section. Thus, each of the entered institutional characteristics provides some evidence in understanding religious change.

After controlling for all input and environmental variables, *getting married* while in college showed to be a significant predictor in strengthening religious convictions.

Interestingly, its beta became nonsignificant and dropped from .06 to .03 after *attending religious services* entered the equation. Based on this beta change, it appears married individuals are more likely to attend religious services and that this activity attributes to the strengthening of religious convictions among married individuals. The other entering environmental variables, *physical science major, interacting with faculty,* and *leadership training* remained significant through most of the regression analysis, but gradually became nonsignificant as other intermediate outcome variables entered the equation.

Table 4: Standardized Regression Coefficients for College Variables

Variable	Zero-order .r	Beta After Inputs	Beta After Env't	Beta After I.O.
Physical Science Major	-.07	-.06**	-.05**	-.02
Peer Mean: Frequently Attended Rel. Svc.	.20	.14**	.16**	.04*
In leadership training	.11	.08**	.07**	.03
Faculty Interactions	.10	.07**	.07**	00
Got Married	.08	.06**	.06**	.02

*p<.01, **p<.001

Results: intermediate outcomes.

The intermediate outcomes that entered showed the most interesting and somewhat unexpected findings in the analysis. Nine of the 15 variables entered the regression equation (see Table 5). All of these qualities remained significant throughout the regression analysis. Among them, *attending religious services* was most highly associated with a strengthening of religious convictions (beta= .36). This variable accounted for more than a third of the total R-square (total R-square= .27). Because this variable was pre-tested, the propensity to attend church prior to college was controlled, which indicates religious activity during college helps to strengthen religious beliefs.

Whether these religious services are typically part of, or extraneous to the college, remain unclear. In any case, religious activity seems to promote religious faith.

Table 5: Standardized Regression Coefficients for Intermediate Outcomes

Variable	Zero-order R	Beta After Inputs	Beta After Env't	Beta at Final Step
Attended Religious Services (post-test)	.42	.46**	.43**	.36**
Liberal Views (post-test)	-.33	-.33**	-.30**	-.15**
Goal: Influence Social Values (post-test)	.08	.16**	.14**	.08**
Goal: Help Others in Difficulty (post-test)	.19	.15**	.13**	.04*
View: Prohibit Homosexual Relationships (post-test)	.18	.16**	.15**	.06**
View: Individual Can Do Little (post-test)	-.14	-.11**	-.09**	-.04*
Goal: Be Very Well Off Financially (post-test)	-.08	-.07**	-.07**	-.05**
Self Rate: Acceptance of Different Races/Cult.	.17	.15**	.14**	.12**
Self Rate: Emotional Health	.14	.14**	.12**	.07**

*p<.01, **p<.001

Intermediate outcomes regarding students' goals and views were also pre-tested, demonstrating that changes in personal goals and views *during college* affected students' self-ratings about religious beliefs. The second highest beta among the intermediate outcomes was *liberal views* (beta= -.15). Past research had found that college attendance has a liberalizing effect on students (Astin, 1993). Given this tendency, it appears that this liberalizing effect is strongly associated with a weakening of religious convictions. It was also found that social promotion goals, *influencing social values* and *helping others*

in difficulty positively affect religious convictions, whereas the goal, *to be well off financially*, weakens religious convictions.

Two self-ratings also entered the regression equation. Unlike the other entered intermediate outcome measures, these two variables do not explain cause; they were not pre-tested and were presented as self-ratings, like the dependent variable. However, these variables do help to provide some explanations about those who strengthen their religious beliefs. Positive self-ratings regarding an acceptance of different races and cultures as well as emotional health are positively associated with a strengthening of religious beliefs and convictions. These characteristics seem appropriate, given the values of acceptance and tolerance among most major religions, as well as the emphasis on emotional well being.

Non-entering variables.

Contrary to the hypothesis, involvement in diversity-related activities does not directly affect changes in religious beliefs. In fact, none of the diversity related experiences entered the regression equation and were not shown to directly account for the outcome measure. Table 6 shows the betas of these intermediate outcome variables had they entered the equation. Interestingly, the variable, *attended cultural diversity workshop*, would have had a significant, positive effect towards a strengthening of beliefs, after controlling for all input and environmental variables (beta= .04), though it would have gradually become insignificant after controlling for the other independent variables. The other variables, *had roommate of different race/ethnicity, enrolled in ethnic studies course, and enrolled in women's studies course*, and the *ethnic interaction*

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composite did not significantly affect the outcome after controlling for the other variables in the equation.

Table 6: Standardized Regression Coefficients for Diversity Variables (if they entered the regression equation)

Variable	Zero-order .r	Beta After Inputs	Beta After Env't	Beta After I.O.
Attended Cultural Diversity Workshop	.07	.06*	.04*	.02
Had Roommate of Different Ethnicity	-.01	.01*	.01	0
Ethnic Studies Course	.03	.03	.03	.01
Women's Studies Course	.02	.01	.01	0
Ethnic Interaction	.03	.04	.04	0

*p<.01

Limitations

One major limitation of utilizing this particular outcome variable was that there was no matching pre-test question that classified self-rated perceptions of religious convictions. Hence, the degree of religious conviction prior to college entry remains uncertain. In addition, the use of a single question as a dependent variable has its limitations as well. The self-rating variable, measured during the end of the senior year, does not account for the number of fluctuations in beliefs or the degree of conflict during the college years. Rather, the study relies upon the students' perceived strength of their current beliefs and convictions compared to their beliefs and convictions upon entering college. Ideally, future studies should consider measuring self-ratings of religious beliefs at multiple points throughout college, as opposed to the end of the senior year.

Identifying the predictors to the outcome variable was limited, as evidenced by an R-square of .27, most of which was attributed to a single variable. While the study

sought to test previous findings in predicting religious change, the variables utilized accounted for a small proportion of the variance. Much of the factors or combinations of factors leading to religious change remains unknown, and could perhaps be better addressed in an exploratory, qualitative study. Also, interaction effects among variables might show stronger predictors than by entering the independent variables by themselves.

Discussion/ Conclusion

The goal of this study was to understand how college affects students' religious beliefs and convictions. Some of the results were contrary to what was anticipated. First, the results showed that while students tend to experience changes in religious beliefs, the direction of change is towards a strengthening of convictions. This finding called into question previous claims in regards to the overall secularizing affect of college on students (Pascarella & Terenzini, 1991). Nevertheless, the study also demonstrated that for 13% of students a weakening of religious beliefs does occur.

Second, as hypothesized, this study partly supports general findings from past studies on the characteristics of those who experience a weakening of religiosity as male, liberal, and having experienced negative emotional health. Inversely, this study found those who are female and having positive emotional health are likely among those who experience a strengthening of beliefs, while those who espouse liberal views while in college would likely weaken their religious convictions. Among these characteristics, adopting liberal views have been demonstrated to directly effect a weakening of religious faith. Given that college has been shown to liberalize students' views (Astin, 1993), the finding that liberal views lead to weaker religious beliefs makes evident that college does

affect students' religiosity. Liberal views regarding casual sex, marijuana, and abortion might run contrary to most religious ideologies, leading to questioning to prior faiths.

Beyond what is already known in religion research, this study also introduced other important experiences that would attribute to a strengthening of faith among collegians. These experiences include frequently attending religious services and attending an institution with a religious peer group. Past research on peer groups are confirmed in this study, as demonstrated by the religious strengthening effect from being among students who frequently attend religious services. Other experiences within the institution, such as faculty interactions and leadership training, play a mediating role in strengthening personal convictions.

Contrary to the hypothesis, it was also found that involvement in diversity-related experiences was not directly associated with a weakening of religious beliefs. Future studies should investigate possible interaction effects or consider other aspects of the college experience that would further challenge theories that claim a pluralistic environment is related to relativistic thinking.

Other unexpected findings are the nonsignificant direct effects of both religious and non-religious institutions on students' religious beliefs. Although these findings may vary from one college to another, it was found having a religious affiliation does not necessarily make a direct difference in students' religious convictions. This brings into question whether religious schools are affecting students' religious lives. Hence, this study has important implications for institutional policy makers and researchers, in both sectarian and non-sectarian schools. Non-sectarian institutions should note possible effects on students' religious beliefs and determine whether such effects are important

concerns for the institution. In light of this suggestion, future research should consider exploring the effects of religious beliefs on more explicit institutional concerns, such as leadership, societal welfare and community service, and academic achievement. Secondly, sectarian institutions that prioritize their religious affiliation should reconsider and reexamine their current approaches towards developing the religious lives of their students. Possible ways to strengthen students' religious beliefs, based upon the findings from this study, are implementing policies toward increasing student-faculty interactions, as well as increasing support for religious student organizations and activities, such as religious services.

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Appendix A
Variables and Score Explanations

Variable	Coding
Dependent Variable	
Self Rated Change: Religious Beliefs & Convictions	Five point scale: 1=much weaker to 5=much stronger
Input Variables: Personal Characteristics	
Gender	1=male; 2=female
Protestant Religion	1=no; 2=yes
Catholic Relgion	1=no; 2=yes
Jewish Religion	1=no; 2=yes
Eastern Religion	1=no; 2=yes
Mother: Protestant Religion	1=no; 2=yes
Mother: Catholic Religion	1=no; 2=yes
Mother: Jewish Religion	1=no; 2=yes
Mother: Eastern Religion	1=no; 2=yes
Input Variables: Pre-college Activites, Views, and Goals	
Attended Religious Services	Three point scale: 1=not at all to 3=frequently
Political Views	Five point scale: 1=far right to 5=far left
View: Prohibit Homosexual Relations	Four point scale: 1=disagree strongly to 4=agree strongly
View: Legalize Abortion	Four point scale: 1=disagree strongly to 4=agree strongly
View: Sex ok if people like eachother	Four point scale: 1=disagree strongly to 4=agree strongly
View: Legalize Marijuana	Four point scale: 1=disagree strongly to 4=agree strongly
View: Individual can do little to change society	Four point scale: 1=disagree strongly to 4=agree strongly
View: Colleges should prohibit racist/ sexist speech	Four point scale: 1=disagree strongly to 4=agree strongly
Objective: Develop philosophy of life	Four point scale: 1=not important to 4=essential
Objective: Help others in difficulty	Four point scale: 1=not important to 4=essential
Objective: Promote racial understanding'	Four point scale: 1=not important to 4=essential
Objective: Influence social values	Four point scale: 1=not important to 4=essential
Objective: Raise a family	Four point scale: 1=not important to 4=essential
High School GPA	Eight point scale: 1=D to 8=A or A+
Input Variables: Student Major	
Biology	1=no; 2=yes
Fine Arts	1=no; 2=yes
Engineering	1=no; 2=yes
Physical Science	1=no; 2=yes
Social Science	1=no; 2=yes
Humanities	1=no; 2=yes
Environmental Variables: Institutional Characteristics	
Catholic Colleges	1=no; 2=yes
Protestant Colleges	1=no; 2=yes
Nonsectarian Colleges	1=no; 2=yes
Selectivity	Continuous: Mean GPA and SAT Scores
Region: West	1=no; 2=yes
Region: South	1=no; 2=yes
Region: East	1=no; 2=yes

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Environmental Variables: Institutional Characteristics (continued)	
Mean: Frequently Attend Religious Services	Continuous
Environmental Variables: College Activities	
Ethnic Interactions (composite of interacted, studied, and socialized with a different ethnic group)	Continuous
Faculty Interactions (composite of 10 faculty interaction variables)	Continuous
Studied with other students	Three point scale: 1=not at all to 3=frequently
Got Married	1=marked; 2=not marked
Taken ethnic studies courses	1=marked; 2=not marked
Attended racial/cultural workshop	1=marked; 2=not marked
Taken women studies course	1=marked; 2=not marked
Had roomate of different ethnicity	1=marked; 2=not marked
Withdrew from school	1=marked; 2=not marked
In leadership training	1=marked; 2=not marked
Distance from home	Six point scale: 1=5or less; 6=more than 500
Intermediate Outcomes: Fourth year Activities, Views, and Goals	
Attended Religious Services	Three point scale: 1=not at all to 3=frequently
Political Views	Five point scale: 1=far right to 5=far left
View: Prohibit Homosexual Relations	Four point scale: 1=disagree strongly to 4=agree strongly
Liberal Views (composite of Legalize Abortion, Sex ok if people like eachother, and Legalize Marijuana)	Continuous
View: Individual can do little to change society	Four point scale: 1=disagree strongly to 4=agree strongly
View: Colleges should prohibit racist/sexist speech	Four point scale: 1=disagree strongly to 4=agree strongly
Objective: Develop philosophy of life	Four point scale: 1=not important to 4=essential
Objective: Help others in difficulty	Four point scale: 1=not important to 4=essential
Objective: Promote racial understanding	Four point scale: 1=not important to 4=essential
Objective: Influence social values	Four point scale: 1=not important to 4=essential
Objective: Raise a family	Four point scale: 1=not important to 4=essential
College GPA	Eight point scale: 1=D to 8=A or A+
Intermediate Outcomes: Self Ratings	
Self Rating: Acceptance of different races/cultures	Five point scale: 1=much weaker to 5=much stronger
Self Rating: Cooperativeness	Five point scale: 1=lowest 10% to 5=highest 10%
Self Rating: Understanding of others	Five point scale: 1=lowest 10% to 5=highest 10%
Self Rating: Emotional health	Five point scale: 1=lowest 10% to 5=highest 10%

Source: UCLA Higher Education Research Institute, Cooperative Institutional Research Program

Appendix
Predicting Self-Rated Changes in Religious Beliefs and Convictions (N=4,278)

				BETA AFTER STEP											
Step	Variable	R2	r	1	2	3	4	5	6	7	8	9	10	11	12
Input															
1	Sex: Female	.01	.09	.09	.08	.05	.05	.05	.05	.07	.06	.06	.06	.05	.05
2	Protestant religion	.01	.06	.05	.04	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02
3	View: Sex ok if people like eachother (pretest)	.03	-.17	-.16	-.16	-.16	-.13	-.10	-.10	-.09	-.09	-.09	-.09	-.08	-.08
4	Attended Religious Services (pretest)	.04	.15	.15	.14	.10	.10	.09	.09	.08	.08	.08	.08	.05	.05
5	View: Legalize Marijuana (pretest)	.05	-.14	-.14	-.13	-.09	-.08	-.08	-.08	-.07	-.08	-.08	.08	-.07	-.06
6	Goal: Promote Racial Understanding (pretest)	.05	.07	.06	.06	.06	.06	.07	.07	.08	.07	.07	.07	.06	.06
7	View: Prohibit Homosexual Rel. (pretest)	.06	.08	.11	.11	.08	.07	.06	.07	.07	.08	.08	.07	.05	.05
8	View: Individual can do little to change society (post-test)	.06	-.08	-.07	-.07	-.06	-.05	-.06	-.05	-.05	-.05	-.05	-.05	-.06	-.05
9	Average High School GPA	.06	.00	-.01	-.01	-.04	-.04	-.05	-.05	-.04	-.04	-.04	-.04	-.03	-.04
Env't															
10	Physical Science Major	.06	-.07	-.09	-.06	-.07	-.06	-.06	-.06	-.06	-.06	-.06	-.06	-.05	-.05
11	Peer Mean: Frequently Attended Rel. Svc.	.08	.20	.20	.20	.17	.16	.15	.15	.14	.14	.14	.14	.14	.14
12	In Leadership Training	.09	.11	.11	.11	.10	.09	.09	.08	.08	.08	.08	.08	.08	.08
13	Faculty Interactions	.09	.10	.09	.09	.08	.07	.07	.07	.07	.07	.07	.08	.08	.07
14	Got Married	.10	.08	.08	.08	.07	.06	.06	.07	.06	.06	.06	.06	.05	.05
Int. Out															
15	Attended Religious Services (post-test)	.21	.42	.42	.42	.41	.47	.47	.46	.46	.46	.46	.46	.44	.44
16	Liberal Views (post-test)	.23	-.33	-.33	-.32	-.32	-.31	-.32	-.33	-.33	-.33	-.33	-.33	-.31	-.31
17	Goal: Influence Social Values (post-test)	.24	.08	.19	.19	.18	.18	.18	.17	.17	.17	.16	.16	.15	.15
18	Goal: Help Others in Difficulty (post-test)	.24	.19	.18	.18	.17	.17	.17	.16	.16	.15	.15	.15	.14	.14
19	View: Prohibit Homosexual Rel. (post-test)	.24	.18	.20	.20	.18	.16	.16	.17	.16	.16	.16	.16	.14	.15
20	View: Individual can do little to change society (post-test)	.24	-.14	-.14	-.14	-.13	-.12	-.12	-.12	-.12	-.11	-.11	-.11	-.11	-.10
21	Goal: Be Very Well Off Financially (post-test)	.25	-.05	-.08	-.08	-.06	-.05	-.06	-.06	-.06	-.06	-.07	-.07	-.07	-.07
22	Self Rate: Acceptance of Different Races/Cult.	.26	.17	.17	.17	.16	.16	.16	.15	.15	.15	.15	.15	.15	.15
23	Self Rate: Emotional Health	.27	.14	.15	.15	.15	.14	.14	.14	.14	.13	.14	.14	.13	.13

p<.01
p<.0001

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Appendix
Predicting Self-Rated Changes in Religious Beliefs and Convictions (N=4,278)

						BETA AFTER STEP								
13	14	Step	Variable	R2	r	15	16	17	18	19	20	21	22	23
		Input												
.04	*.04*	1	Sex: Female	.01	.09	.02	.03	.02	.02	.02	.02	.02	.03	.03
.02	.02	2	Protestant religion	.01	.06	.02	.02	.03	.02	.02	.02	.02	.02	.02
-.08	**-.08**	3	View: Sex ok if people lke eachother (pretest)	.03	-.17	-.02	.01	.02	.02	.01	.01	.02	.02	.02
.04	.04	4	Attended Religious Services (pretest)	.04	.15	**-.14**	**-.14**	**-.14**	**-.14**	-.14	**-.14**	**-.14**	**-.15**	**-.15**
-.06	**-.06**	5	View: Legalize Marijuana (pretest)	.05	-.14	-.03	.01	.01	.01	.01	.01	.01	.01	.01
.05	*.05*	6	Goal: Promote Racial Understanding (pretest)	.05	.07	*.04*	**.05**	.03	.02	.03	.02	.02	.02	.02
.05	*.05*	7	View: Prohibit Homosexual Rel. (pretest)	.06	.08	.01	-.02	-.02	-.02	-.04	-.04	-.04	-.04	-.04
-.05	*-.05*	8	View: Individual can do little to change society (post-test)	.06	-.08	*-.04*	*-.04*	*-.04*	-.03	-.03	-.02	-.02	-.02	-.02
-.05	*-.05*	9	Average High School GPA	.06	.00	*-.05*	**-.05**	*-.04*	*-.04*	*-.04*	*-.04*	*-.04*	*-.04*	*-.04*
		Env't												
-.06	**-.05**	10	Physical Science Major	.06	-.07	*-.04*	*-.04*	-.03	-.03	-.03	-.03	-.03	-.03	-.02
.14	**.16**	11	Peer Mean: Frequently Attended Rel. Svc.	.08	.20	**.06**	*.05*	*.04*	*.04*	.04	.04	.04	*.04*	*.04*
.07	**.07**	12	In Leadership Training	.09	.11	**.05**	**.06**	*.05*	*.05*	*.05*	*.04*	*.05*	.04	.03
.07	**.07**	13	Faculty Interactions	.09	.10	*.04*	*.04*	.03	.03	.03	.03	.02	.01	.00
.06	**.06**	14	Got Married	.10	.08	.03	.02	.02	.02	.02	.02	.02	.02	.02
		Int. Out.												
.44	**.43**	15	Attended Religious Services (post-test)	.21	.42	**.43**	**.38**	*.37*	**.37**	**.36**	**.36**	**.36**	**.36**	**.36**
-.31	**-.30**	16	Liberal Views (post-test)	.23	-.33	**-.18**	**-.18**	**-.17**	**-.17**	**-.16**	**-.16**	**-.15**	**-.15**	**-.15**
.14	**.14**	17	Goal: Influence Social Values (post-test)	.24	.08	**.12**	**.12**	**.12**	**.10**	**.10**	**.09**	**.09**	**.08**	**.08**
.13	**.13**	18	Goal: Help Others in Difficulty (post-test)	.24	.19	**.10**	**.09**	**.05**	**.05**	**.06**	*.05*	*.05*	*.04*	*.04*
.15	**.15**	19	View: Prohibit Homosexual Rel. (post-test)	.24	.18	**.09**	**.05**	*.02*	*.05*	*.05*	*.06*	*.06*	**.06**	**.06**
-.09	**-.09**	20	View: Individual can do little to change society (post-test)	.24	-.14	**-.07**	**-.07**	*-.05*	*-.05*	*-.05*	*-.05*	*-.05*	*-.05*	*-.04*
-.07	**-.07**	21	Goal: Be Very Well Off Financially (post-test)	.25	-.08	**-.05**	**-.05**	*-.04*	*-.04*	*-.04*	*-.04*	*-.04*	*-.05*	**-.05**
.14	**.14**	22	Self Rate: Acceptance of Different Races Cult.	.26	.17	**.14**	**.14**	**.13**	**.13**	**.12**	**.13**	**.13**	**.13**	**.12**
.12	**.12**	23	Self Rate: Emotional Health	.27	.14	**.09**	**.09**	**.08**	**.08**	**.08**	**.08**	**.08**	**.07**	**.07**

*p .01
**p<.001

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